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Gratton et al.

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(54) **METHODS AND APPARATUS FOR PROVIDING CHAT DATA AND VIDEO CONTENT BETWEEN MULTIPLE VIEWERS**

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(52) **U.S. Cl.**
USPC **348/14.04**; 348/14.05

(58) **Field of Classification Search**
USPC 348/14.01, 14.04, 14.08, 14.05
See application file for complete search history.

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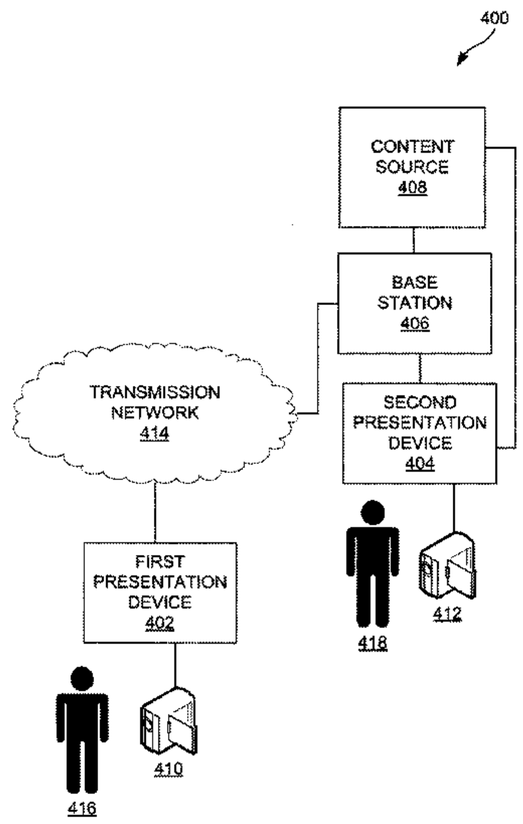
(74) *Attorney, Agent, or Firm* — Ingrassia Fisher & Lorenz, P.C.

(57) **ABSTRACT**

Various embodiments of apparatus and/or methods are described for providing communication between multiple content viewers. First video data is captured of a first user located locally with respect to a presentation device and transmitted to a base station located remotely with respect to the presentation device. The base station transmits a composite signal that includes video content provided by a content source communicatively coupled the base station and further includes second video chat data captured of a second user located remotely with respect to the presentation device. The composite signal is responsively presented by the presentation device to the first user.

17 Claims, 7 Drawing Sheets



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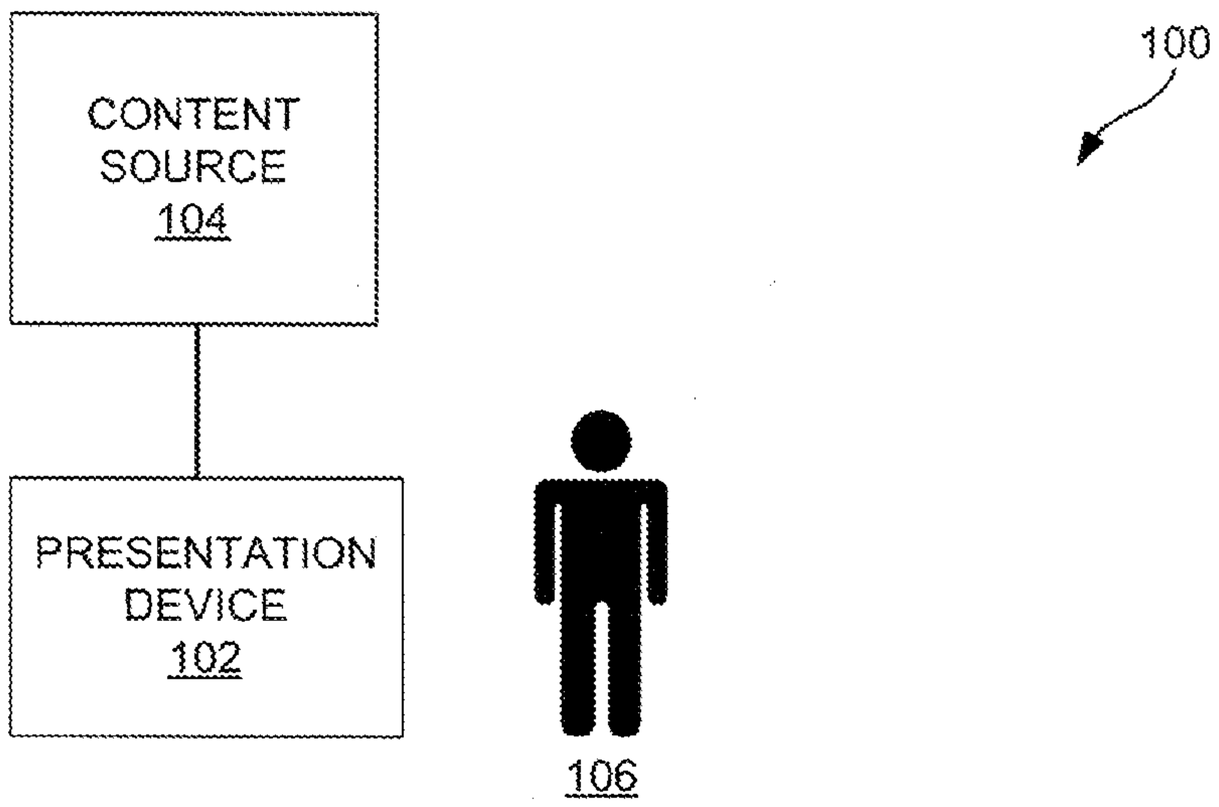
100
CONTENT SOURCE 104
PRESENTATION DEVICE 102
106

FIG. 1

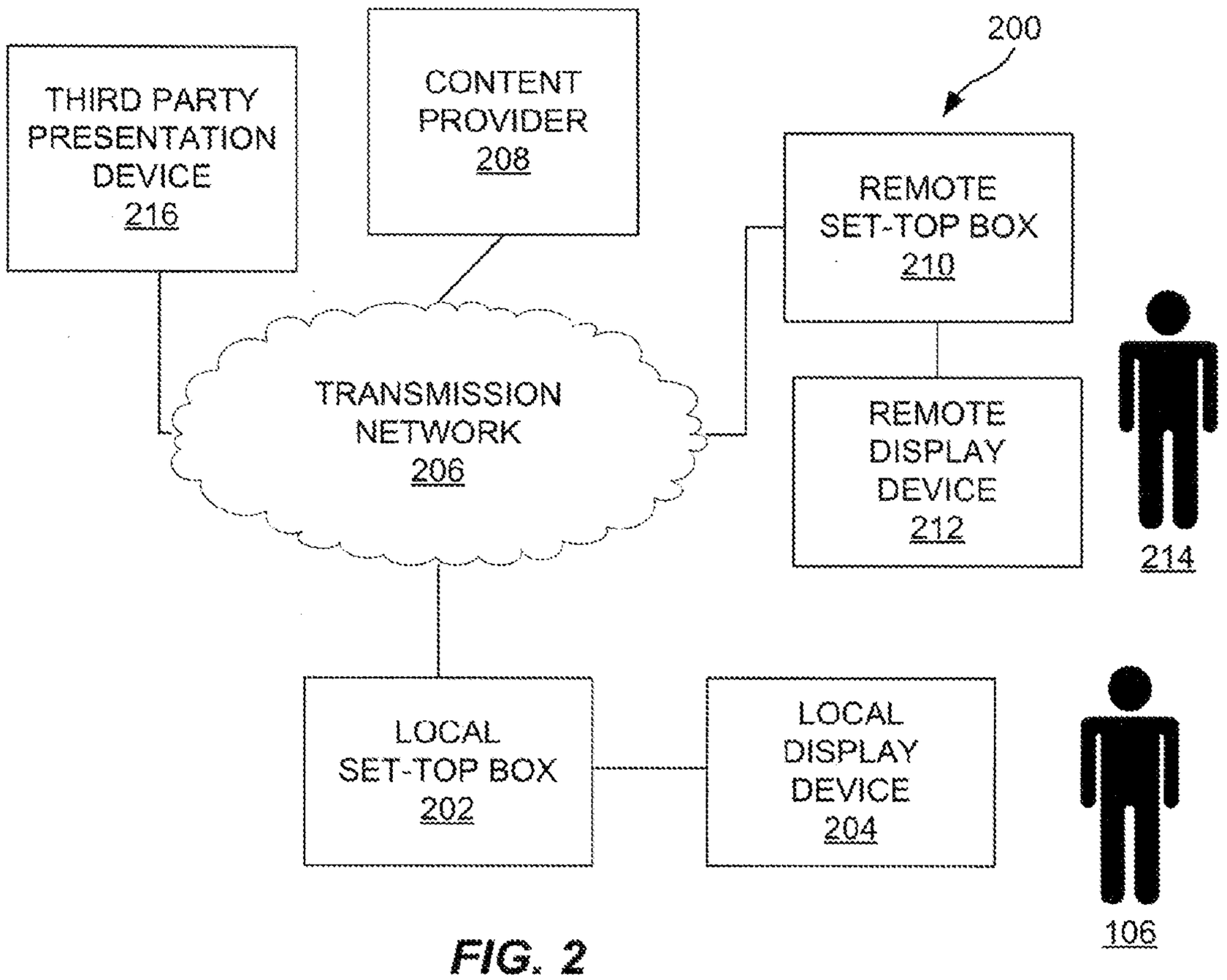
200
THIRD PARTY PRESENTATION DEVICE 216
CONTENT PROVIDER 208
REMOTE SET-TOP BOX 210
TRANSMISSION NETWORK 206
REMOTE DISPLAY DEVICE 212
214
LOCAL SET-TOP BOX 202
LOCAL DISPLAY DEVICE 204
106

FIG. 2

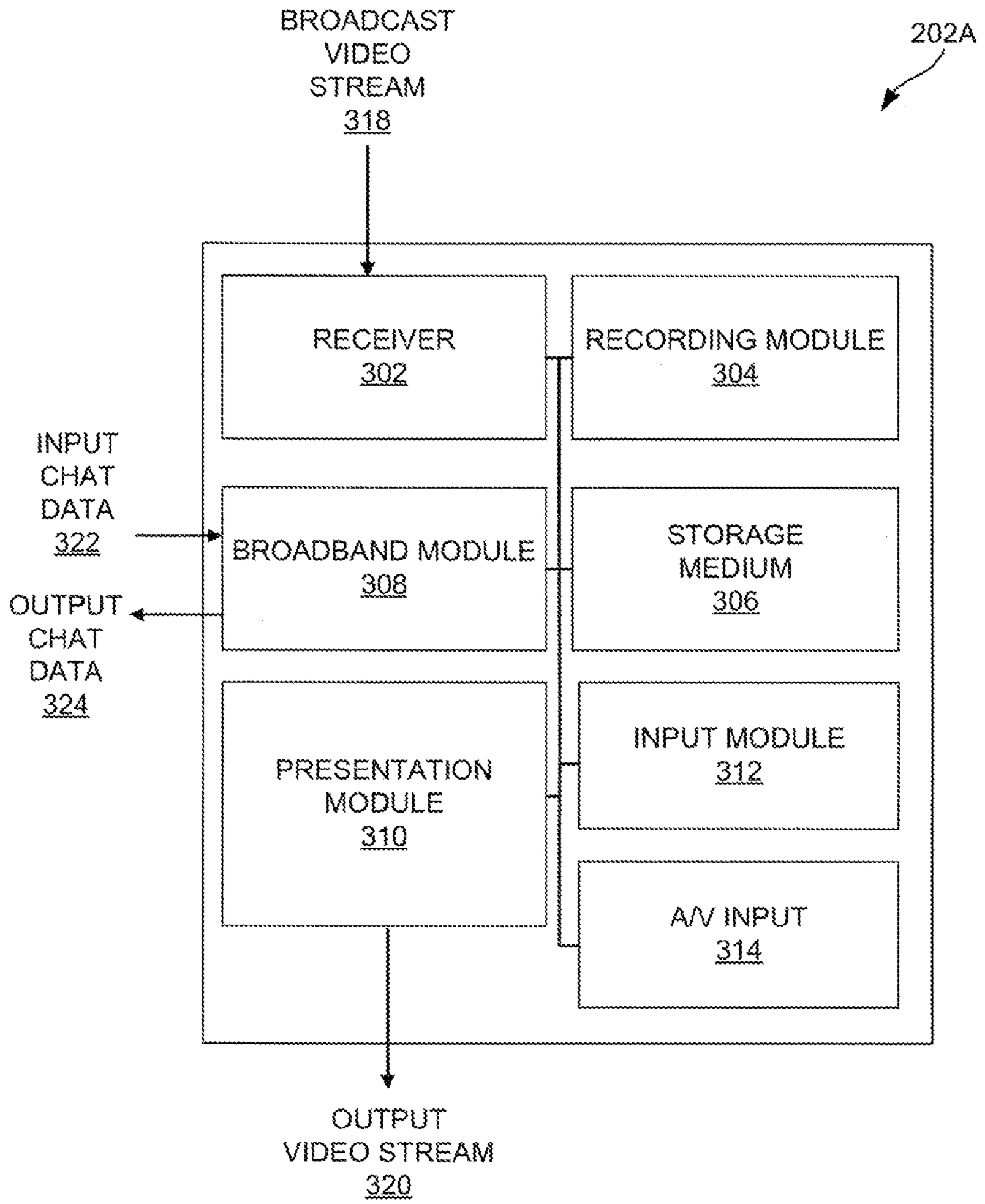
BROADCAST VIDEO STREAM 318
202A
RECEIVER 302
RECORDING MODULE 304
INPUT CHAT DATA 322
BROADBAND MODULE 308
STORAGE MEDIUM 306
OUTPUT CHAT DATA 324
PRESENTATION MODULE 310
INPUT MODULE 312
A/V INPUT 314
OUTPUT VIDEO STREAM 320

FIG. 3

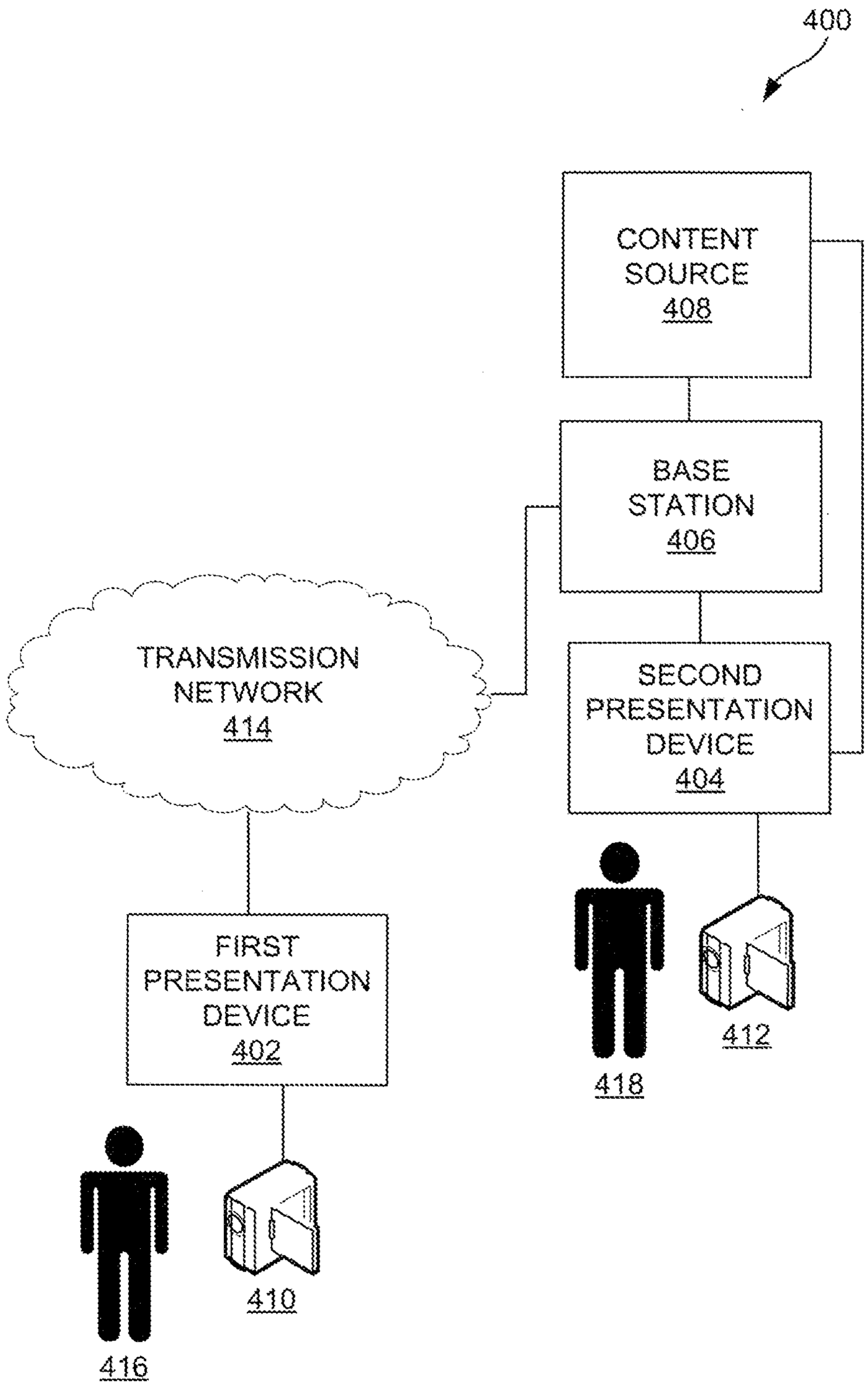
400
CONTENT SOURCE 408
BASE STATION 406
TRANSMISSION NETWORK 414
SECOND PRESENTATION DEVICE 404
FIRST PRESENTATION DEVICE 402
412
418
410
416

FIG. 4

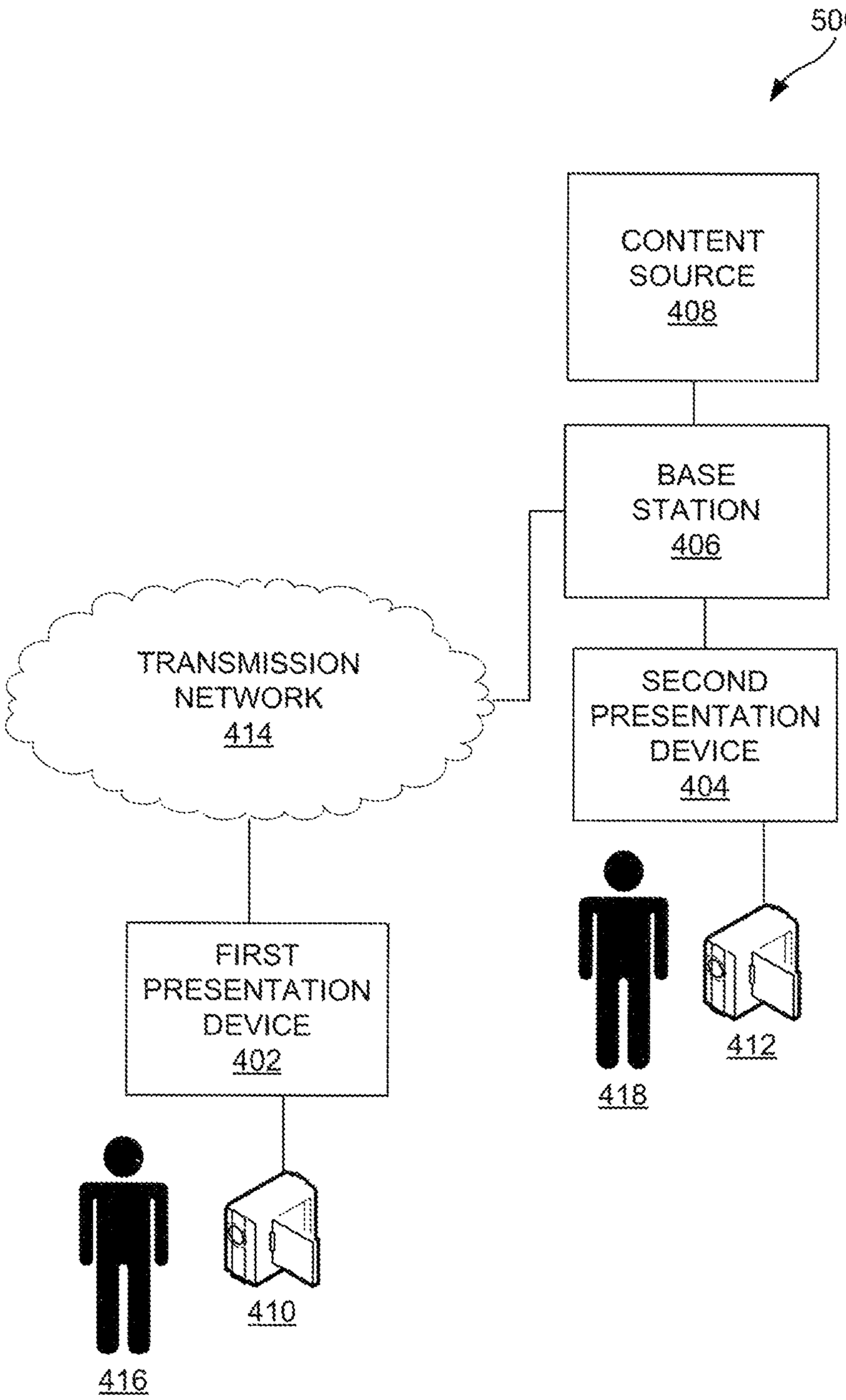
500
CONTENT SOURCE 408
BASE STATION 406
TRANSMISSION NETWORK 414
SECOND PRESENTATION DEVICE 404
FIRST PRESENTATION DEVICE 402
418
412
410
416

FIG. 5

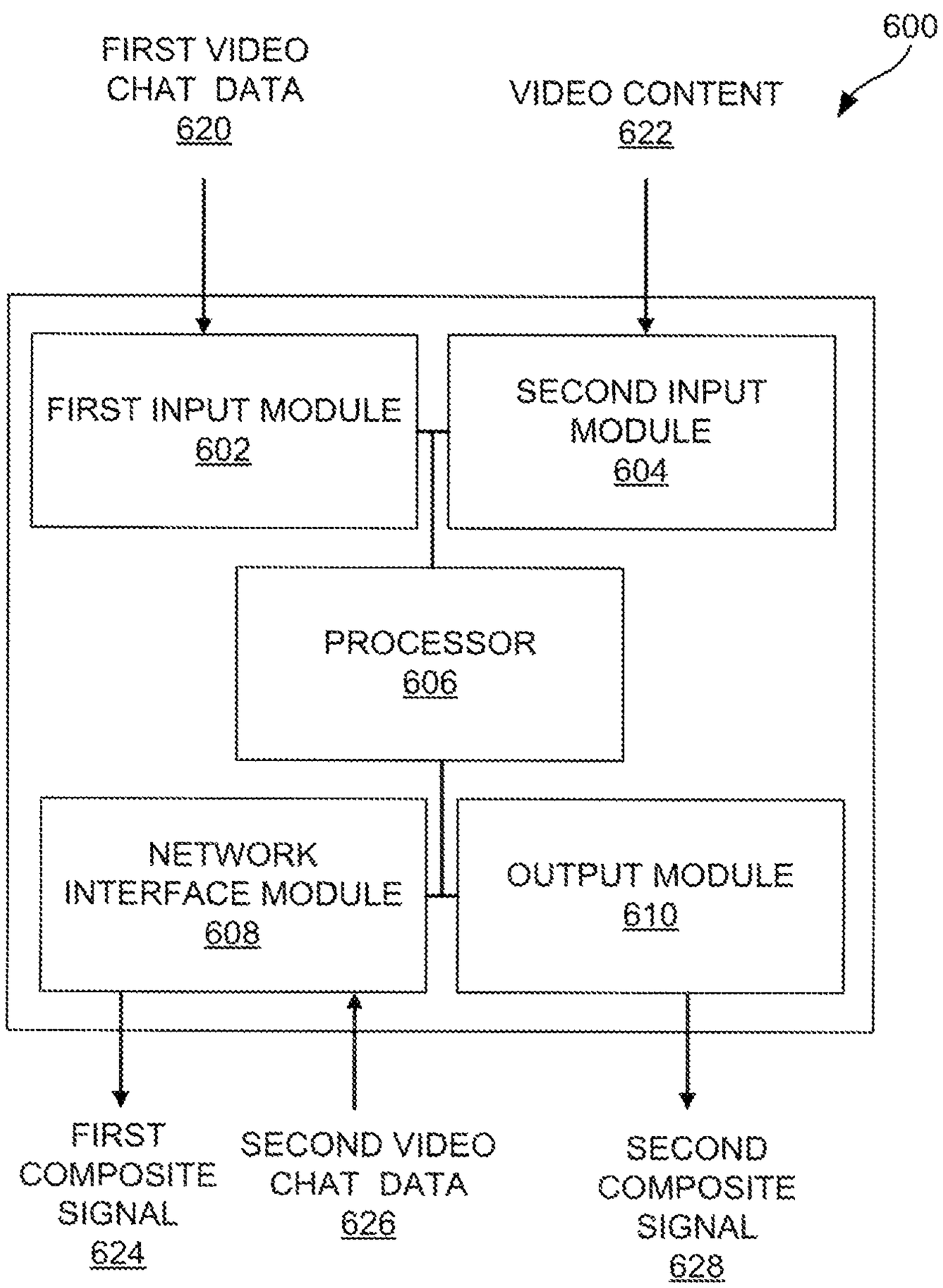
600
FIRST VIDEO CHAT DATA 620
VIDEO CONTENT 622
FIRST INPUT MODULE 602
SECOND INPUT MODULE 604
PROCESSOR 606
NETWORK INTERFACE MODULE 608
OUTPUT MODULE 610
FIRST COMPOSITE SIGNAL 624
SECOND VIDEO CHAT DATA 626
SECOND COMPOSITE SIGNAL 628

FIG. 6

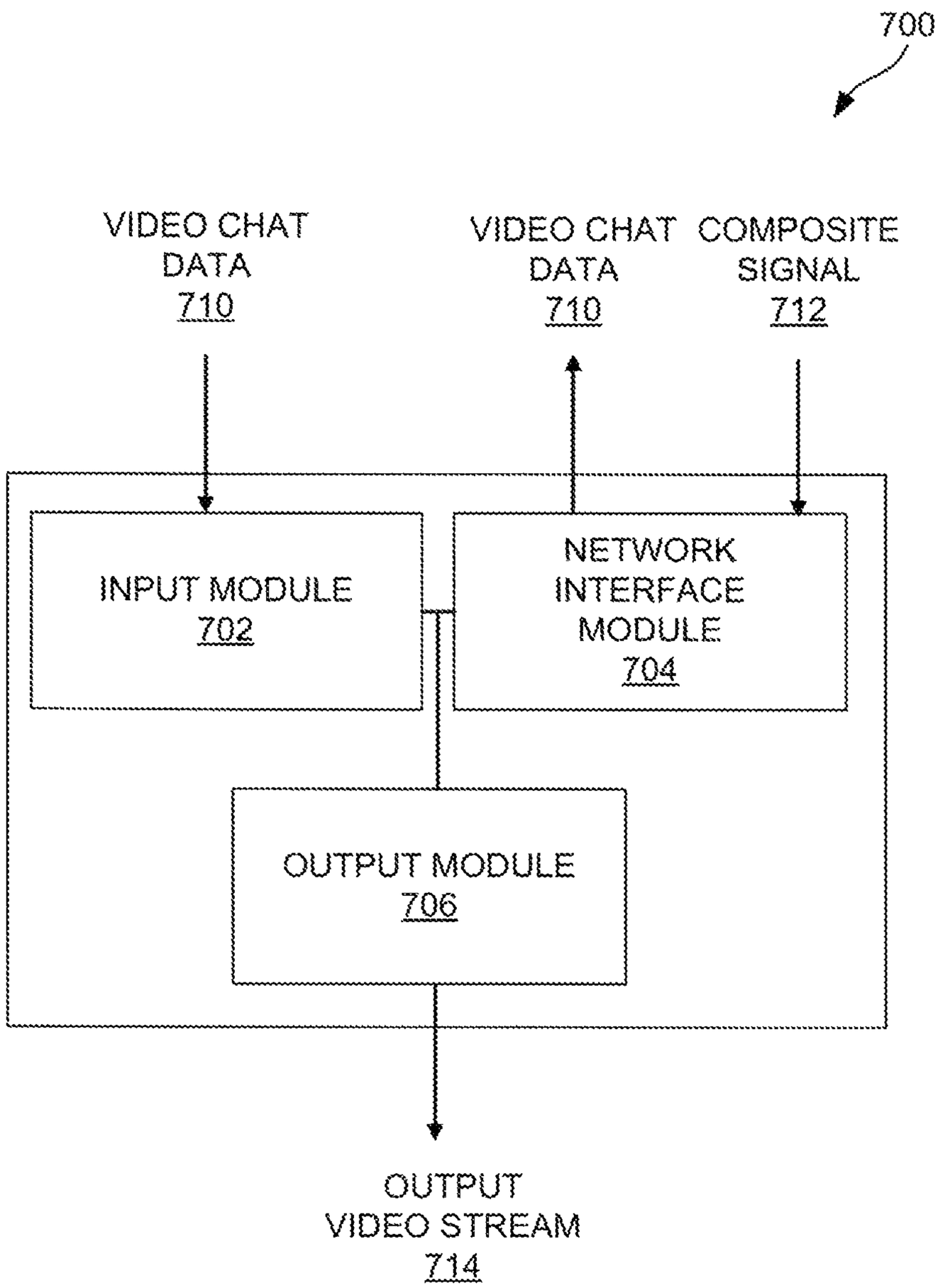
700
VIDEO CHAT DATA
710
VIDEO CHAT DATA
710
COMPOSITE SIGNAL
712
INPUT MODULE
702
NETWORK INTERFACE MODULE
704
OUTPUT MODULE
706
OUTPUT VIDEO STREAM
714

FIG. 7

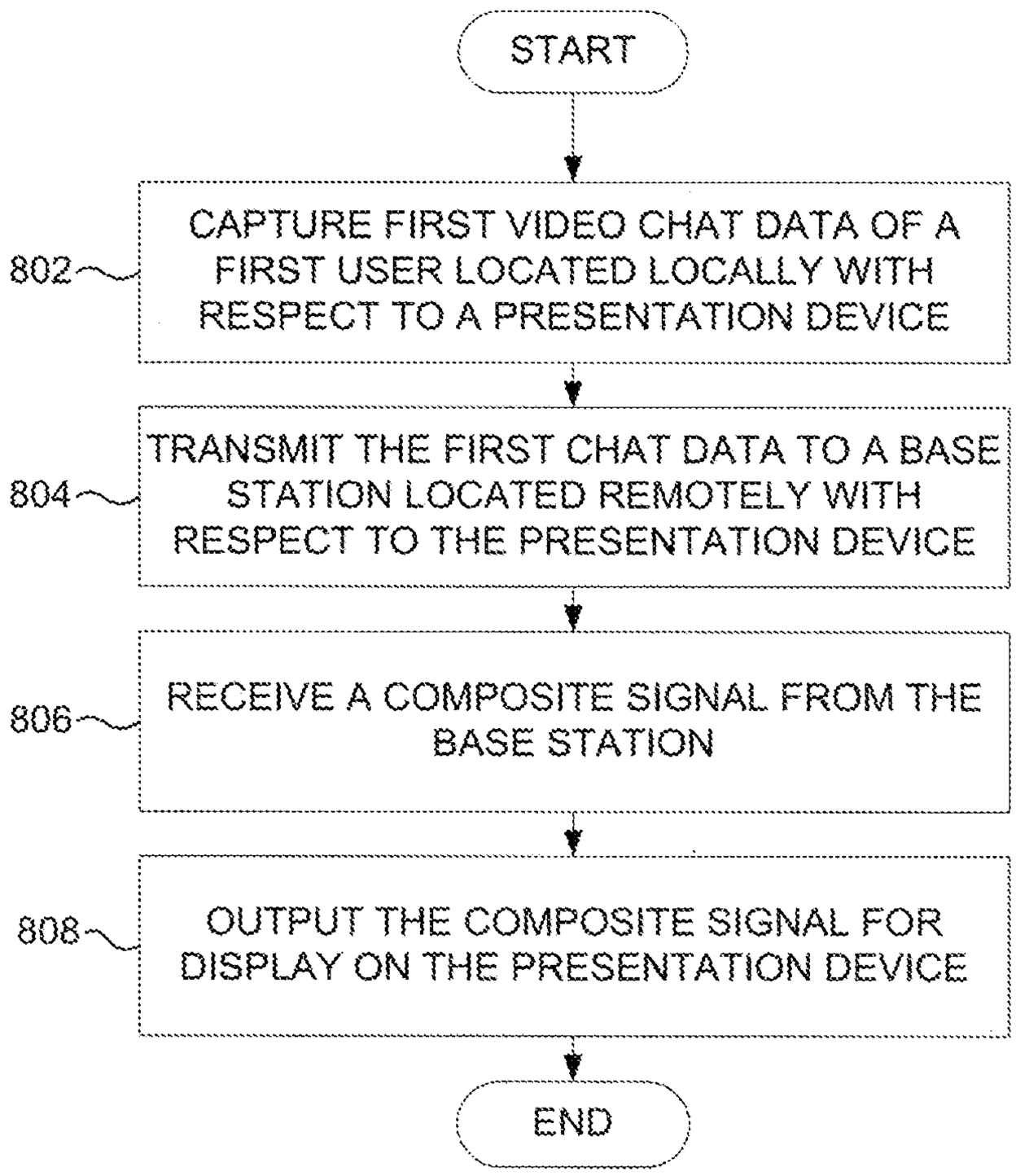
START
802
CAPTURE FIRST VIDEO CHAT DATA OF A FIRST USER LOCATED LOCALLY WITH RESPECT TO A PRESENTATION DEVICE
804
TRANSMIT THE FIRST CHAT DATA TO A BASE STATION LOCATED REMOTELY WITH RESPECT TO THE PRESENTATION DEVICE
806
RECEIVE A COMPOSITE SIGNAL FROM THE BASE STATION
808
OUTPUT THE COMPOSITE SIGNAL FOR DISPLAY ON THE PRESENTATION DEVICE
END

FIG. 8

METHODS AND APPARATUS FOR PROVIDING CHAT DATA AND VIDEO CONTENT BETWEEN MULTIPLE VIEWERS

BACKGROUND

People often like to watch television programs and movies with friends and family. A group of people may gather around a television to experience their favorite television show, movie or sporting event together. Watching television is a social experience, and people often discuss topics related to the television programming. For example, when watching sports, people often like to discuss the team or the players participating in the game. However, when people are remotely located with respect to each other, it becomes difficult to maintain the social experience of watching television together.

Many people try to maintain the social experience of watching television together while they are apart by communicating over a distinct communication medium, such as a telephone. Seinfeld fans will remember when Kramer's girlfriend moves across the city, and Kramer attempts to watch a television movie while talking on the phone with his girlfriend. However, this solution has several inadequacies. It is awkward to hold a telephone while watching programming having a lengthy duration, such as movies and sporting events. Additionally, a viewer's telephone is tied up during the conversation, and they may be unable to accept phone calls from other people during the duration of the conversation. Also, one person is not able to see the physical reactions of the other participant in the conversation, which makes it difficult to fully experience the social interaction.

BRIEF DESCRIPTION OF THE DRAWINGS

The same number represents the same element or same type of element in all drawings.

FIG. **1** illustrates an embodiment of an entertainment system.

FIG. **2** illustrates an embodiment of a content distribution system.

FIG. **3** illustrates an embodiment of functional components of the local set-top box of FIG. **2**.

FIG. **4** illustrates an embodiment of a communication system.

FIG. **5** illustrates another embodiment of a communication system.

FIG. **6** illustrates an embodiment of functional components of the base station of FIGS. **4-5**.

FIG. **7** illustrates an embodiment of an apparatus for presenting video content and chat data to a user.

FIG. **8** illustrates an embodiment of a process for providing video communication between users.

DETAILED DESCRIPTION

The various embodiments described herein generally provide apparatus, systems and methods which facilitate the reception, processing, and outputting of presentation content. More particularly, the apparatus, systems and methods described herein facilitate the transmission of audio and video chat data that may be presented on a presentation device in association with other presentation content. In short, various embodiments described herein provide apparatus, system and/or methods for providing communication between multiple viewers of presentation content at disparate locations.

In at least one embodiment, the presentation content to be received, processed, outputted and/or communicated may come in any form of a video stream. It is to be appreciated that the video stream may be supplied by any source, such as an over-the-air broadcast, a satellite or cable television distribution system, a digital video disk (DVD) or other optical disk, digital video recorder (DVR), the internet or other communication networks and the like. In at least one embodiment, the video stream may comprise both video data and audio data.

In various embodiments described herein, the chat data of a first user is captured at a first presentation device and transmitted to a second presentation device for presentation to a second user. The chat data may be captured in any format, including video data, audio data, image data, text data or any combination thereof. The chat data is then presented in association with the presentation content (e.g., broadcast video content) by the second presentation device.

In at least one embodiment, the chat data of the first user is transmitted from the first presentation device to the second presentation device via an intermediate base station. The base station further receives chat data of the second user from the second presentation device and combines the second chat data with video content from a communicatively coupled content source to form a composite signal. In at least one embodiment, the content source is located locally with respect to the second presentation device. The composite signal is further transmitted to the first presentation device for presentation to the first user. In at least one embodiment, the base station may further combine the chat data of the first user and the video content into a second composite signal that is transmitted to the second presentation device for presentation to the second user. Thus, the base station may facilitate two users watching video content from the same content source while simultaneously participating in a video chat.

FIG. **1** illustrates an embodiment of an entertainment system **100**. The entertainment system **100** presents content to a user **106**. In at least one embodiment, the content presented to the user **106** includes a video stream, such as a television program, movie or other recorded content and the like. The entertainment system **100** includes a presentation device **102** and a content source **104**. Each of these components is discussed in greater detail below.

The presentation device **102** is configured to receive content from one or more content source(s) **104**, and to present the received content to the user **106**. In at least one embodiment, the presentation device **102** is a display device configured to display content to the user **106**. The presentation device **102** may receive a video stream in any format (e.g., analog or digital format), and present the video stream to the user **106**. In at least one embodiment, the presentation device **102** receives video content from the content source **104**, and presents the video content in a display area of the presentation device **102**. The presentation device **102** further receives chat data, and presents the chat data from the content source **104** in association with the video content. The chat data may come in any format, including audio data, video data, image data, text data or any combination thereof.

In at least one embodiment, the chat data includes audio data, and the presentation device **102** simultaneously presents the audio data with the video content received from the content source **104**. If the video content includes an audio component, then the audio component and the audio chat data may be mixed together and presented through an audio output of the presentation device **102**. In at least one embodiment, the audio component of the video content is muted during presentation of the audio chat data.

In at least one embodiment, the chat data includes video data, and the presentation device **102** simultaneously presents the video chat data with the video content received from the content source **104**. For example, the video chat data and the video content may be presented in a picture-in-picture (PIP) or split screen mode. Thus, the video chat data may be presented in a first region of the display area of the presentation device **102**, and the video content may be presented in a second region of the display area. In at least one embodiment, the video chat data and the video content both include associated audio components that are mixed together and simultaneously presented through an audio output of the presentation device **102**. It is to be appreciated that the user **106** may video chat with multiple remote users simultaneously. Thus, the presentation device **102** may present multiple PIP windows, each PIP window displaying video chat data for one remote user.

The content source **104** may comprise any system or apparatus configured to provide presentation data, such as a video stream, to the presentation device **102**. The content source **104** may be external or internal to the presentation device **102**. The presentation device **102** and the content source **104** may be communicatively coupled through any type of wired or wireless connection, communication network and the like. Exemplary content sources include television distribution systems (e.g., over-the-air distribution systems, cable television distribution systems, satellite television distribution systems and broadband distribution systems), set-top boxes, DVD players and other optical disk players, digital storage mediums (e.g., DVRs) and the internet.

In at least one embodiment, the content source **104** further provides chat data to the presentation device **102**. The originating source of the chat data may be different than the originating source of the video content. Further, the chat data and the video content may be received by the content source **104** and/or the presentation device through different communication paths. For example, the video content may be provided to the content source **104** by a satellite television provider, whereas, the chat data may be provided to the content source **104** by a remote television receiver (e.g., a remote set-top box) over an internet connection or other type of data network.

The presentation device **102** may receive the video content and the chat data in a single signal or through multiple signals. Further, the presentation device **102** may receive the video content and the chat data through a single input or multiple inputs. For example, the content source **104** may comprise a set-top box that receives broadcast video content (e.g., a television program) and video chat data and combines both signals to output a single video signal provided to the presentation device **102**. In some embodiments, the presentation device **102** may receive the video chat data and the video content through multiple inputs (e.g., on two different channels), and may present the video chat data and the video content in a PIP mode. Thus, through the operation of the entertainment system **100**, the user **106** is presented with chat data and other presentation content (e.g., broadcast video content) simultaneously. Entertainment system **100** may include other elements or components not illustrated for the sake of brevity.

FIG. **2** illustrates an embodiment of a content distribution system **200**. The content distribution system **200** is configured to present presentation content and chat data to a user **106**. More particularly, the content distribution system **200** facilitates a conversation between two remotely located users **106** and **214** through the users' television receivers. The content distribution system **200** includes a local set-top box **202**, a local display device **204**, a transmission network **206**, a content provider **208**, a remote set-top box **210** and a display device **212**. Each of these components is discussed in greater detail below.

The display device **204** may comprise any type of device operable for receiving and displaying analog and/or digital video signals. In at least one embodiment, the display device **204** may be a television set or video display that contains an integrated television converter device (e.g., an internal cable-ready television tuner housed inside a television), or, alternatively, that is connected to an external television converter device for receiving and demodulating analog and/or digital signals for presentation on the local display device **204** (e.g., the local set-top box **202**).

Using an integrated television converter device, the local display device **204** may be operable to communicate directly with the transmission network **206**. For example, the transmission network **206** may comprise an over-the-air distribution system (e.g., free television), and the local display device **204** may receive television broadcast signals using an internal or external antenna. The transmission network **206** may also comprise a cable television distribution system, and the local display device **204** may comprise a cable ready television adapted to receive and demodulate analog or digital cable television signals for presentation to the local user **106**. A direct broadcast satellite or other type of wired or wireless communication network may also be used solely or in conjunction with the foregoing. In at least one embodiment, the local display device **204** may communicate with the transmission network **206** through an intermediate television receiver device, such as the local set-top box **202** that receives and demodulates analog and/or digital signals for presentation on the display device **204** that the display device **204** itself is unable to receive.

The local set-top box **202** is communicatively coupled to the local display device **204** through any type of wired or wireless connection. Exemplary wired connections include coax, fiber, composite video and High-Definition Multimedia Interface (HDMI). Exemplary wireless connections include WiFi and Bluetooth. In at least one embodiment, the local set-top box **202** is embodied in a television converter device (e.g., a satellite television receiver). The local set-top box **202** may also be incorporated into the local display device **204**.

As illustrated in FIG. **2**, the local set-top box **202** is coupled to a content provider **208** (e.g., a satellite television provider) through the transmission network **206**. Thus, the local set-top box **202** receives a television signal (e.g., a broadcast) or other data signal (e.g., digital video data or other data formatted into a video stream) from the transmission network **206**, and outputs television programs and other content provided by the content provider **208** to the local display device **204**. In at least one embodiment, the local set-top box **202** includes digital video recorder (DVR) functionality that captures and records video content onto a storage medium for subsequent presentation to the local user **106**. It is to be appreciated that the local set-top box **202** may capture and record video streams from non-broadcast devices, such as video recorders, DVD players, personal computers, the internet or other storage devices (e.g., universal serial bus (USB) flash drives).

The local set-top box **202** may include a remote control or other input device (not shown) that the local user **106** may utilize for remotely operating the set-top box **202** and/or the local display device **204**. More specifically, a remote control may be operable for controlling the presentation of video and/or other data presented by the local set-top box **202** on the local display device **204**. In at least one embodiment, the remote control includes a microphone for capturing audio

chat data from the local user **106**. In some embodiments, the local set-top box **202** may include a video camera that is internal to the local set-top box **202** or communicatively coupled to the local set-top box **202** to capture video and/or audio chat data from the local user **106**.

The chat data is transmitted by the local set-top box **202** to a remote set-top box **210** located remotely with respect to the local set-top box **202**. For example, the local set-top box **202** may be located in a different building, city or even country than the remote set-top box **210**. However, it is to be appreciated that the relative locations of the local set-top box **202** and the remote set-top box **210** may be significantly closer. For example, the local set-top box **202** and the remote set-top box **210** may be located in different rooms of the same building.

The remote set-top box **210** may be similar in configuration and functionality to the local set-top box **202**, and is communicatively coupled to a remote display device **212**. The remote set-top box **210** is communicatively coupled to the local set-top box **202** through the transmission network **206**. In at least one embodiment, the local set-top box **202** and the remote set-top box **210** communicate over the same communication path as each receives a broadcast television signal. For example, the local set-top box **202** and the remote set-top box **210** may receive both broadcast video content and chat data over a broadband connection. In other embodiments, the transmission network **206** may include multiple communication paths for providing video content and chat data to the local set-top box **202** and the remote set-top box **210**. For example, the local set-top box **202** and the remote set-top box **210** may receive video content from the content provider **208** over a satellite television distribution network, and may communicate with each other through a broadband connection. In some embodiments, the local set-top box **202** and the remote set-top box **210** may receive video content over disparate communication paths. For example, the local set-top box **202** may receive video content over a satellite television distribution network, and the remote set-top box **210** may receive video content over a cable television distribution network.

The remote set-top box **210** receives chat data from the local set-top box **202**, and outputs the chat data for presentation to the remote user **214**, on the remote display device **212**, in association with the presentation content received from the content provider **208**. For example, the chat data may include video data that is presented by the remote display device **212** simultaneously with video content of a football game in a PIP mode. Likewise, the remote set-top box **210** captures chat data of the remote user **214**, and transmits the chat data to the local set-top box **202** for presentation to the local user **106**.

In at least one embodiment, the local set-top box **202** records the chat data received from the remote-set top box **210** for subsequent presentation to the local user **106**. For example, while watching the football game with a PIP video chat display, the local user **106** may perform trick play operations on the video chat data (e.g., rewind, fast forward or pause the video chat data). In some embodiments, the local user **106** may desire to subsequently experience the chat data at a later time without experiencing the original video content that corresponds with the chat data. For example, the local user **106** may desire to see their friend's reaction to a touchdown in the football game several days later.

In some embodiments, the local set-top box **202** records audio or video data of the local user **106** for subsequent presentation to the local user **106**. In other words, as the local set-top box **202** captures and transmits audio and/or video chat data of the local user **106** to the remote set-top box **210**, the local set-top box **202** may record the audio and/or video chat data for later viewing.

In at least one embodiment, the local set-top box **202** may be configured to transmit portions of the audio and/or video chat data to third party recipients through a third party presentation device **216**. For example, the local user **106** may select a portion of the chat data featuring the remote user **214** and transmit the selected portion to the third party presentation device **216**. Likewise, if the local set-top box **202** captures audio and/or video chat data of the local user **106**, then the local user **106** may select portions of the chat data for transmission to a third party recipient. The third party presentation device **216** comprises any type of device capable of receiving and presenting content to a user, such as another set-top box, television, computer, personal digital assistant (PDA), mobile or wireless telephone and the like.

The content provider **208** comprises any source or sources of television or other video signals. In at least one embodiment, the content provider **208** provides a television broadcast signal to the set-top box **202** over the transmission network **206**. The content provider **208** may be a television station that generates and provides the content or may be a television service that provides retransmission of television signals (e.g., a satellite television provider). It is to be appreciated that the content provider **208** may also provide some retransmission services while generating and providing some original or derivative content.

The transmission network **206** may comprise any type of communication network utilized between the set-top box **202** and the content provider **208**. Exemplary communication networks include television distribution networks (e.g., over-the-air, satellite and cable television networks), wireless communication networks, public switched telephone networks (PSTN), and local area networks (LAN) or wide area networks (WAN) providing data communication services. The transmission network **206** may utilize any desired combination of wired (e.g., cable and fiber) and/or wireless (e.g., cellular, satellite, microwave, and radio frequency) communication mediums and any desired network topology (or topologies when multiple mediums are utilized). The local set-top box **202** and/or the remote set-top box **210** may communicate with the transmission network **206** through a wired or wireless connection. The transmission network **206** may distribute television broadcast and other data signals in digital or analog form. Exemplary video formats include moving pictures expert group (MPEG), flash, Windows Media, and the like. Content distribution system **200** may include other elements or components not illustrated for the sake of brevity.

FIG. **3** illustrates an embodiment of functional components of the local set-top box **202**A of FIG. **2**. FIG. **3** will be discussed in reference to the content distribution system **200** illustrated in FIG. **2**. The local set-top box **202**A comprises a receiver **302**, a recording module **304**, a storage medium **306**, a broadband module **308**, a presentation module **310**, an input module **312**, an audio/video (A/V) input **314** and a camera **316**. Each of these components is discussed in greater detail below.

The receiver **302** receives a broadcast video stream **318** from the transmission network **206** (see FIG. **2**). The receiver **302** may comprise a wired or wireless receiver. In at least one embodiment, the receiver **302** receives the broadcast video content from a satellite television distribution system. If necessary, the receiver **302** may perform demodulation and/or filtering of the broadcast video stream **318** signal to generate a format utilized by the presentation module **310**. The receiver **302** may further receive other data (e.g., chat data)

from the transmission network **206**. In at least one embodiment, the receiver **302** may also include transmitter functionality to transmit data across the transmission network to the content provider **208** (see FIG. **2**) or the remote set-top box **210**. For example, the local set-top box **202** may transmit chat data to the remote set-top box **210** through the satellite television distribution network.

The broadband module **308** is connected to a broadband data network and provides bi-directional data transmission between the local set-top box **202** and the remote set-top box **210**. Thus, the broadband module **308** receives input chat data **322** from the remote set-top box **210** and transmits output chat data **324** to the remote set-top **210**. In at least one embodiment, the broadband module **308** is an Ethernet connection communicatively coupled to the internet or other type of data communication network. It is to be appreciated that other types of wired and wireless broadband connections may be utilized.

The presentation module **310** is configured to receive the broadcast video stream and the input chat data **322** and output an output video stream **320** for presentation on the display device **204** (see FIG. **2**). In at least one embodiment, the output video stream **320** comprises a PIP or split screen video signal generated based on the broadcast video stream **318** and the input chat data **322**. The presentation module **310** may also retrieve recorded content stored on the storage medium **306** to output the output video stream **320**. For example, the presentation module **310** may generate an output video stream **320** based on recorded television shows and/or recorded chat data stored on the storage medium. The presentation module **310** may also generate and output other video data, such as menus and user interfaces, for presentation on the display device **204** (see FIG. **2**). In at least one embodiment, the A/V input **314** is a Bluetooth receiver/transmitter configured to wirelessly communicate with Bluetooth enabled devices, such as microphones, cameras and mobile telephones. Thus, the A/V input **314** may capture audio data, video data, text data and/or image data from a Bluetooth enabled device.

The input module **312** is configured to receive user input data from the local user **106**. In at least one embodiment, the input module **312** communicates with external input devices, such as remote controls, keyboards, mice, mobile telephones and the like. In at least one embodiment, the input module **312** is an infrared (IR) or radio frequency (RF) transmitter/receiver configured to wirelessly communicate with a television remote control (not shown). The remote control may be configured to remotely control output of the output video stream **320** by the local set-top box **202**A. In at least one embodiment, a remote control may be configured to remotely control the capture of chat data by the camera **316**. In at least one embodiment, the input module **312** is a keypad, touch screen or other input device mounted on a casing of the local set-top box **202**A.

The A/V input **314** is communicatively coupled to a camera **316** that captures video data of the local user **106** (see FIG. **2**). In at least one embodiment, the camera **316** includes a microphone for capturing audio data associated with the video data of the local user **106**. In some embodiments, the A/V input **314** may be communicatively coupled to a microphone (not shown) rather than the camera **316**, and the microphone may capture audio data of the local user **106**. The camera **316** may be internal or external to the local set-top box **202**A. For example, the camera **316** may be mounted to an external casing of the local set-top box **202**A. The camera **316** may also communicatively couple to the A/V input **314** through a wired or wireless connection, such as a universal serial bus (USB) cable or a Bluetooth connection. Responsive to the A/V input **314** capturing chat data from the local user **106**, the broadband module **308** transmits the output chat data **324** over the transmission network **206** to the remote set-top box **210**.

The recording module **304** is configured to record video streams and other A/V data to the storage medium for subsequent presentation. In at least one embodiment, the recording module **304** receives the broadcast video stream **318** and stores the broadcast video stream **318** to the storage medium. In some embodiments, the recording module **304** receives the input chat data **322** and stores the input chat data **322** to the storage medium for subsequent presentation. In at least one embodiment, the remote user **106** may experience the input chat data **322** at a later time or may perform trick mode functions (e.g., rewind) during viewing of the broadcast video stream **318**. The storage medium **306** may be any type of temporary or persistent storage device capable of storing the broadcast video stream **318** and the input chat data **322**. The storage medium **306** may be internal and/or external to the local set-top box **202**A. For example, the storage medium **306** may be an internal hard drive or flash memory. The broadcast video stream **318** and the input chat data **322** may be stored together and/or separately on the storage medium **306**.

Those of ordinary skill in the art will appreciate that the various functional elements **302** through **316** shown as operable within the local set-top box **202**A may be combined into fewer discrete elements or may be broken up into a larger number of discrete functional elements as a matter of design choice. For example, the broadband module **308**, the recording module **304**, the input module **312**, the A/V input **314** and/or the presentation module **310** may be combined into one or more processors or processing modules. Thus, the particular functional decomposition suggested by FIG. **3** is intended merely as exemplary of one possible functional decomposition of elements within the local set-top box **202**.

In at least one embodiment, a set-top box or other presentation device may receive both chat data and video content in a composite signal from a single signal source. FIG. **4** illustrates an embodiment of a communication system **400**. More particularly, FIG. **4** illustrates a communication system **400** in which at least one presentation device receives video content and chat data from a single source. The communication system **400** includes a first presentation device **402**, a second presentation device **404**, a base station **406**, a content source **408**, a first video capture device **410**, a second video capture device **412** and a transmission network **414**. Each of the components of FIG. **4** will be discussed in greater detail below.

The first presentation device **402** may be any type of device capable of receiving and displaying video content to a user **416**. For example, the first presentation device **402** may be a television, mobile communication device, mobile computer, personal computer and the like. The first presentation device **402** is communicatively coupled to the transmission network **414** and receives chat data and video content from the transmission network **414**. The chat data and the video content are received in a composite signal outputted by the base station **406**. For example, the base station **406** may output the video chat data in a PIP screen of the video content.

The first presentation device **402** may be communicatively coupled to the transmission network over any type of wired or wireless communication link. In at least one embodiment, the transmission network **414** comprises a data network, e.g., the internet, and the first presentation device **402** is communicatively coupled to the transmission network through a wired or wireless broadband communication link. In some embodi-

ments, the first presentation device **402** may be communicatively coupled to the transmission network **414** through an intermediate device, such as a set-top box. For example, the first presentation device **402** may comprise a television communicatively coupled to the transmission network **414**, e.g., a broadband network, through a cable television or satellite television set-top box.

The first presentation device **402** is further communicatively coupled to a first video capture device **410**. The first video capture device **410** captures video chat data of the user **416** located locally with respect to the first presentation device **402**. In other words, the user **416** is sitting near the first presentation device **402**. The first presentation device **402** (or an intermediate set-top box and the like) communicatively coupled to the first presentation device **402** transmits the captured video chat data of the user **416** to the base station **406** through the transmission network **414** for presentation on the second presentation device **404**. The first video capture device **410** may be internal or external to the first presentation device **402**. For example, the first presentation device **402** may comprise a laptop computer with an integrated webcam. In at least one embodiment, the first video capture device **410** may be integrated within a television set-top box or the like communicatively coupled to the first presentation device **402**.

The second presentation device **404** may be any type of device capable of receiving and displaying video content to the user **418**. The second presentation device **404** may be communicatively coupled to the transmission network **414** directly or through an intermediate device, such as the base station **406**.

The second presentation device **404** may be similar to the first presentation device **402** and may be located remotely with respect to the first presentation device **402**. For example, the first and second presentation devices **402** and **404** may both comprise televisions or laptop computers. Alternatively, the first and second presentation devices **402** and **404** may be disparate devices. For example, the first presentation device **402** may comprise a laptop computer communicatively coupled to the transmission network, and the second presentation device **404** may comprise a television communicatively coupled to the transmission network **414** through the base station **406** (e.g., a television set-top box with an integrated broadband connection). The content source **408** is communicatively coupled to the second presentation device **404** and provides video content to the second presentation device **404**.

The second video capture device **412** is configured to capture video chat data of the second user **418**. The second user **418** is located locally with respect to the second presentation device. In other words, the second user **418** is sitting near the second presentation device **404**. The video capture device **412** and/or the second presentation device **404** transmit the captured video chat data of the second user **418** to the base station **406** for further transmission to the first presentation device **402**.

The base station **406** may comprise any type of device capable of combining two video signals into a composite signal and transmitting the composite signal to the first presentation device **402** over the transmission network **414**. The base station **406** is communicatively coupled to the content source **408** and receives video content therefrom. The content source **408** may comprise any type of device or system that provides video content to the base station **406**. For example, the content source **408** may comprise an over-the-air broadcast, a satellite or cable television distribution system, DVR, DVD or other optical disk player, the internet or other communication network and the like. In at least one embodiment, the base station **406** is integrated within the content source **408**. For example, the base station **406** may be integrated within a television receiver set-top box.

In at least one embodiment, the base station **406** may be integrated within the second presentation device **404**. For example, the second presentation device **404** may comprise a laptop that also receives and transmits video content and chat data to the first presentation device **402**. It is to be appreciated that the second presentation device **404**, the base station **406** and the content source **408** may all be integrated within a single apparatus, such as a computer, television/DVR and the like.

The base station **406** receives the video content from the content source **408** and the video chat data of the user **418** from the second video capture device **412** and generates a composite signal therefrom. The composite signal is then transmitted by the base station **406** to the first presentation device **402** for presentation to the user **416**. Thus, the first presentation device **402** receives both video content and chat data from the same source. The base station **406** further receives the chat data of the user **416** from the first presentation device **402** and responsively outputs the chat data to the second presentation device **404** for presentation to the user **418**. Thus, the base station **406** facilitates the transmission of chat data between the first presentation device **402** and the second presentation device **404** while further providing the first presentation device **402** with video content from the remotely located content source **408**.

In at least one embodiment, the first presentation device **402** may transmit commands to the base station **406** to control the output of video content included in the composite signal. For example, the first presentation device **402** may receive input from the user **416** that requests swapping of the PIP screens outputted by the base station **406**. A command may further request manipulation of the output by the content source **408**. For example, the content source **408** may comprise a television receiver, and the input from the user **416** may request to change the channel outputted by the television receiver. In other embodiments, the content source **408** may comprise a DVR, and the input from the user **416** may request to perform trick play mode functions (e.g., fast-forwarding, reversing, pausing and the like) or change the video outputted by the content source **408**. The first presentation device **402** receives the input from the user **416** and transmits the command to the base station **406**. The base station **406** receives the command and responsively transmits the command to the content source **408**. The content source **408** then operates to process the command and manipulate the output of the video content accordingly. The command may be transmitted between the base station **406** and the content source **408** using any type of communication link or protocol, such as radio frequency (RF), infrared (IR) or other types of wired or wireless communication links. In the embodiment illustrated in FIG. **4**, the user **416** can thus manipulate the output of video content from the content source **408** located remotely with respect to the first presentation device **402**.

As illustrated in FIG. **4**, the second presentation device **404** is communicatively coupled to the content source **408**. The presentation device **404** may also be coupled to the content source **408** through the intermediate base station **406**. FIG. **5** illustrates another embodiment of a communication system **500**. More particularly, FIG. **5** illustrates a communication system **500** in which a base station provides video content and chat data to multiple connected presentation devices. FIG. **5** includes components common to FIG. **4**, and description of these components is omitted herein for sake of brevity.

In at least one embodiment, the base station **406** is configured to further output a second composite signal to the second presentation device **404** for presentation to the user **418**. The base station **406** receives video content from the content source **408** and chat data of the first user **416** from the first presentation device **402** and responsively generates a second composite signal for output to the second presentation device **404**. The second composite signal may be similar to the first composite signal outputted by the base station **406** to the first presentation device **402**. For example, the chat data of the first user **416** may be combined with the video content from the content source **408** and outputted to the second presentation device **404**.

In at least one embodiment, the base station **406** is capable of outputting two different versions of the video content received from the content source **408**. Thus, while both users **416** and **418** are effectively watching the same content, each user **416** and **418** may independently manipulate the video content displayed by the presentation devices **402** and **404**. For example, each user **410** and **418** may independently perform trick play mode functions on the video content. In other embodiments, the base station **406** outputs a single version of the video content to both presentation devices **402** and **404**. Thus, when one user manipulates the video content through a command transmitted to the base station **406**, the content displayed to the user will be affected by the aforementioned command.

FIG. **6** illustrates an embodiment of functional components of the base station **406**A of FIGS. **4-5**. FIG. **6** will be discussed in reference to the communication systems **500** and **600** illustrated in FIGS. **4-5**. The base station **406**A comprises a first input module **602**, a second input module **604**, a processor **606**, a network interface module **608** and an output module **610**. Each of these components is discussed in greater detail below.

The first input module **602** of the base station **406**A receives first video chat data **620** of a user **418** located locally with respect to a presentation device **404**. The first input module **602** receives the first video chat data **620** from the first video capture device **412**. The first input module **602** may be communicatively coupled to the presentation device **404** through any type of wired or wireless communication link. In at least one embodiment, the first input module **602** may be communicatively coupled to the video capture device **410** through an intermediate device, such as the presentation device **404**.

The second input module **604** of the base station **406**A receives video content **622** provided by a content source **408**. The second input module **604** may be communicatively coupled to the content source **408** through any type of wired or wireless communication link, such as coaxial cable, component cables, WiFi and the like. In at least one embodiment, the content source **408** is integrated with the base station **406**.

The processor **606** of the base station **406**A operates to combine the first video chat data **620** and the video content **622** into a first composite signal **624**. The processor **606** may be configured to perform various video processing techniques, such as video compression, transcoding and the like. For example, at least one of the first video chat data **620** and the video content **622** may be captured in analog form, and the processor **606** may be operable to digitize the received analog video to generate the first composite signal **624** in a digital format. In at least one embodiment, the processor **606** may manipulate the output of the video content within the first composite signal **624** based on commands received from the presentation device **402**.

A network interface module **608** of the base station **406**A communicatively couples to another presentation device **402** located remotely with respect to the base station **406**A. The network interface module **608** and the presentation device **402** may communicate over any type of network topology and communication link. The network interface module **608** transmits the first composite signal **624** to the presentation device **402**.

The presentation device **402** concurrently transmits to the network interface module **608** second video chat data **606** of a second user **416** located locally with respect to the presentation device **402**. An output module **610** of the base station **406**A outputs the second video chat data **610** for presentation on the presentation device **402**. In at least one embodiment, the processor **606** is operable to combine the video content **622** and the second video chat data **626** into a second composite signal **628**. The generation of the second composite signal **628** may be performed similarly to the generation of the first composite signal **624**. Thus, the base station **406**A facilitates communication between two users **416** and **418** while also facilitating presentation of similar content to both users **416** and **418**.

Those of ordinary skill in the art will appreciate that the various functional elements **602** through **610** shown as operable within the base station **406**A may be combined into fewer discrete elements or may be broken up into a larger number of discrete functional elements as a matter of design choice. For example, the first input module **602**, the second input module **604**, the network interface module **608** and the output module **610** may be combined into one or more communication modules. Thus, the particular functional decomposition suggested by FIG. **6** is intended merely as exemplary of one possible functional decomposition of elements within the base station **406**A.

FIG. **7** illustrates an embodiment of an apparatus **700** for presenting video content and chat data to a user. The apparatus **700** may comprise a presentation device or an intermediate device, e.g., a set-top box, communicatively coupled to a presentation device. The apparatus includes an input module **702**, a network interface module **704** and an output module **706**. Each of these components will be discussed in greater detail below.

The input module **702** of the apparatus **700** is communicatively coupled to a video capture device, e.g., a video camera, and receives first video chat data **710** of a first user located locally with respect to a presentation device communicatively coupled to the apparatus **700**. The video capture device may be communicatively coupled to the input module **702** through any type of wired or wireless communication link. In at least one embodiment, the video capture device is integrated with the apparatus **700**. For example, the apparatus **700** may comprise a laptop computer with an integrated webcam. The input module **702** may be further configured to receive input from a user. For example, the input module **702** may receive commands from a user requesting to manipulate the output of content outputted for presentation by the apparatus **700**. These received commands may be further transmitted to a base station via the network interface module **704**.

The network interface module **704** transmits the video chat data **710** to a base station located remotely with respect to the apparatus **700** (and the presentation device communicatively coupled to the apparatus **700**). The network interface module **704** may communicatively couple to the base station using any type of wired or wireless communication link and using any type of network topology. For example, the network interface module **704** may comprise an Ethernet port that communicatively couples to the base station over the internet.

The network interface module **704** further receives a composite signal from the base station. The composite signal includes video content provided by a content source located remotely with respect to the apparatus **700** and second video chat data captured of a second user located remotely with respect to the apparatus **700** (and its associated presentation device). In at least one embodiment, the content source is located locally with respect to the base station.

The output module **706** of the apparatus **700** outputs the composite signal in an output video stream **714** for display on the presentation device communicatively coupled to the apparatus **700**. The output module **706** may be communicatively coupled to a presentation device using any type of wired or wireless communication link. The output module **706** may be configured to perform various processing and formatting operations on the composite signal **712** prior to generating the output video stream **714**. In at least one embodiment, the apparatus **700** includes an integrated presentation device, e.g., a display and/or speakers for presenting the output video stream **714**.

FIG. **8** illustrates an embodiment of a process for providing video communication between multiple users. However, it is to be appreciated that the operation of the process of FIG. **8** may be applied to provide communication between viewers watching any type of video stream content, such as television content, DVD videos, recorded content, video on-demand (VOD) content and the like. The operations of the process of FIG. **8** are not all-inclusive, and may comprise other operations not illustrated for the sake of brevity.

The process includes capturing first video chat data of a first user located locally with respect to a presentation device (operation **802**). The first video chat data may be captured by any type of analog and/or digital video camera and the like. The first video chat data may be digitized and/or compressed after capture for optimal transfer across a communication network.

The process further includes transmitting the first chat data to a base station located remotely with respect to the presentation device (operation **804**). The first chat data may be transmitted to the base station over any type of communication network using any type of communication protocol. In at least one embodiment, the first chat data is transmitted to the base station using an internet protocol (IP).

The process further includes receiving a composite signal from the base station (operation **806**). The composite signal includes video content provided by a content source communicatively coupled to the base station and further includes second video chat data captured of a second user located remotely with respect to the presentation device.

The process further includes outputting the composite signal for display on the presentation device (operation **808**). In at least one embodiment, the composite signal may be outputted from a set-top box or the like to a separate presentation device. In another embodiment, the presentation device receives the composite signal directly from the base station and displays the composite signal on a display screen of the presentation device.

Although specific embodiments were described herein, the scope of the invention is not limited to those specific embodiments. The scope of the invention is defined by the following claims and any equivalents therein.

What is claimed is:

1. A method for providing video communication between users, the method comprising:

capturing first video chat data of a first user located locally with respect to a presentation device of the first user;

transmitting the first chat data to a base station of a second user located remotely with respect to the presentation device;

receiving a composite signal from the base station of the second user, the composite signal including video content provided by a content source communicatively coupled to the base station and further including second video chat data captured of the second user located remotely with respect to the presentation device;

outputting the composite signal for display on the presentation device of the first user; and

transmitting a command from the presentation device of the first user to the base station of the second user, wherein the command manipulates presentation of the video content included in the composite signal.

2. The method of claim **1**, further comprising:

transmitting the command from the base station to the content source, wherein the command manipulates the video content outputted by the content source.

3. The method of claim **2**, further comprising:

outputting the manipulated video content from the content source to a second presentation device located locally with respect to the second user.

4. The method of claim **2**, wherein transmitting the command further comprises:

transmitting the command from the presentation device to the content source through the base station, the command requesting to change the content outputted by the content source.

5. The method of claim **4**, wherein the content source comprises a digital video recorder, and the command requests to change a video outputted by the digital video recorder.

6. The method of claim **4**, wherein the content source comprises a television tuner device, and the command requests to change a channel outputted by the television tuner device.

7. An apparatus comprising:

an input module that receives from a video capture device first video chat data of a first user located locally with respect to a presentation device of the first user;

a network interface module communicatively coupled to the input module that transmits the first chat data to a base station of a second user located remotely with respect to the presentation device of the first user, that receives a composite signal from the base station of the second user, the composite signal including video content provided by a content source located remotely with respect to the apparatus and further including second video chat data captured of the second user located remotely with respect to the presentation device of the first user; and

an output module communicatively coupled to the network interface module that outputs the composite signal for display on the presentation device of the first user,

wherein the input module receives a command from the first user, and the network interface module transmits the command to the base station of the second user, wherein the command manipulates the video content included in the composite signal.

8. The apparatus of claim **7**, wherein the command manipulates the video content outputted by the content source.

9. The apparatus of claim **8**, wherein the command requests a change to the content outputted by the content source.

10. The apparatus of claim **9**, wherein the content source comprises a digital video recorder, and the command requests to change a video outputted by the digital video recorder.

11. The apparatus of claim 9, wherein the content source comprises a television tuner device, and the command requests to change a channel outputted by the television tuner device.

12. The apparatus of claim 7, wherein the apparatus comprises a mobile communication device.

13. A base station comprising:

a first input module that receives from a first video capture device first video chat data of a first user located locally with respect to a first presentation device and the base station;

a second input module that receives video content provided by a content source;

a processor communicatively coupled to the first input module and the second input module, the processor operable to combine the first video chat data and the video content into a composite signal;

a network interface module communicatively coupled to the processor that transmits the composite signal to a second presentation device located remotely with respect to the base station and that receives second video chat data of a second user captured by a second video capture device located locally with respect to the second presentation device; and

an output module communicatively coupled to the network interface module that outputs the second video chat data for presentation on the second presentation device of the second user,

wherein, the network interface module receives a command from the second presentation device of the second user, the second command requesting manipulation of the video content; and the processor transmits the command to the content source, the content source manipulating output of the video content based on the command.

14. The base station of claim 13, wherein the processor is further operable to combine the second video chat data and the video content into a second composite signal, and wherein the output module outputs the second composite signal for presentation on the second presentation device.

15. The base station of claim 13, wherein the base station is integrated within a digital video recorder.

16. The base station of claim 13, wherein the base station is integrated within a television tuner device.

17. The base station of claim 13, wherein the base station is integrated within the first presentation device.

* * * * *